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10/548,409	09/08/2005	Makoto Komatsubara	053077	8149

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EXAMINER	
ZHAO, XIAO SI	

ART UNIT	PAPER NUMBER
1792	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/548,409	KOMATSUBARA ET AL.	
	Examiner	Art Unit	
	XIAO ZHAO	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) *7-9* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 10-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1, 3-5, and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huelsman et al. (US 5694701).

Per independent claim 1:

Huelsman et al. teach a method of drying a coating on a substrate using a condensing surface located adjacent to the substrate on the side of the substrate being dried (see abstract and Fig. 1 and 2). The web, having a coating, can travel at any speed between the two plates (col. 6, 60-62). A coating is applied to the substrate and then dried (col. 13, 7-26). The rate of drying can be controlled by controlling the height

of the gap and the temperature differential between the coated substrate and the condensing surface (col. 3, 45-47).

Huelsman et al. does not explicitly disclose the evaporation rate of the solvent to be less than 0.1 g/m^2s; the coating immediately dried after application of the coating. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that evaporation rate is a result effective variable which can be controlled by controlling the height of the gap and the temperature differential between the coated substrate and the condensing service (as aforementioned from Huelsman et al.). Thus, the optimization of the evaporation rate to reach less than 0.1 g/m^2s only requires ordinary skill in the art (see MPEP 2144.05). Huelsman et al. disclose that the drying system can be used to reduce or virtually stop the drying of the coating and that it would be advantageous to slow down the rate of drying for optimum product properties (col. 11, 42-61). Also, it would have been obvious to one of ordinary skill in the art at the time of the invention that drying of the coating can be immediately done after the application of the coating since this will result in a more efficient process time by eliminating the downtime between coating and drying.

Per claim 3, a heated plate is placed below the substrate (col. 6, 49-53 and Fig. 1 and 2). A gap exists between the plate and the condensing plate and between the plate and the heating plate (col. 6, 58-60).

Per claim 4, the method can be used without condensation by raising the condensing plate surface above the dew point of the vapors in the gap (col. 12, 26-29).

Per claim 5, the condensing surface can be formed on a stationary or rotating belt and alternatively formed of fins (col. 3, 48-50).

Per independent claim 10:

Huelsman et al. teach a method of drying a coating on a substrate using a condensing surface located adjacent to the substrate on the side of the substrate being dried (see abstract and Fig. 1 and 2). The web, having a coating, can travel at any speed between the two plates (col. 6, 60-62). A coating is applied to the substrate and then dried (col. 13, 7-26). The widths of both plates are wider than the width of the substrate and the first plate is provided as one side of a tunnel structure which surrounds the substrate (see Fig. 1 and 2). The rate of drying can be controlled by controlling the height of the gap and the temperature differential between the coated substrate and the condensing surface (col. 3, 45-47).

Huelsman et al. does not disclose that the substrate is provided via downstream side of a coating system. However, as aforementioned, the substrate is dried after it is coated (col. 13, 7-26) and this would be understood by one of ordinary skill in the art that the drying is downstream of coating, or in other words, drying takes place after coating.

Per claim 11, the web, having a coating, can travel at any speed between the two plates (col. 6, 60-62). A gap exists between the plate and the condensing plate and between the plate and the heating plate (col. 6, 58-60).

Per claim 12, grooves are placed at the bottom surface of the condensing plate in which each of the extending grooves is perpendicular to the substrate (col. 7, 32-35 and Fig. 3). The grooves can be triangular, rectangular, circular, or other more complex shapes (col. 7, 37-44).

Huelsman et al. does not teach that the grooves are convex structures. However, the use of convex structures as grooves would have been obvious and within one of ordinary skill in the art since Huelsman et al. disclose that any complex shapes can be used and thus the use of a convex structure would yield predictable and similar results (col. 7, 37-44).

Per claim 13, see rejection for claim 10.

Per claim 14, the method can be used without condensation by raising the condensing plate surface above the dew point of the vapors in the gap (col. 12, 26-29).

4. Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huelsman et al. (US 5694701) as applied to claim 1 in view of Andes et al. (US 6238472).

Huelsman et al. teach all the limitations of claim 1 but fail to teach that drying is done until coated substrate enters a drying system and the coating formed is an optically functional layer.

Andes et al. teach an optically functional layer consisting of pigments(col. 5, 63-66) that is passed through a dryer on a coated belt (col. 4, 14-18).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the dryer system taught by Andes et al. to additionally dry the coated substrate taught by Huelsman et al. One would have been motivated to do this because this would enable additional drying of the coating and remove any moisture that was not completely removed from the evaporation. In addition, it has been established that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced.

Furthermore, it would have been obvious to one of ordinary skills in the art at the time of the invention to use an optically functional layer, as taught by Andes et al., as the coating in Huelsman et al.'s drying steps. One would have been motivated to dry an optically functional coating because to form the layer, the initial liquid in the optically functional coating needs to be dried. In addition, all layers have an optical function since by just looking at a layer - its appearance provides that optical function.

Response to Amendment

5. The Affidavit under 37 CFR 1.132 filed 12/1/2008 is insufficient to overcome the rejection of claims 1-6 and 10-14 based upon U.S.C. 103(a) as set forth in the last Office action because: The submitted Affidavit was used to support that Huelsman et al.'s invention uses a higher evaporation rate than the instant invention. Applicants argue that Hulesman et al. does not teach motivation for decreasing the evaporation

rate. This is not persuasive because Huelsman et al. disclose that the drying system can be used to reduce or virtually stop the drying of the coating and that it would be advantageous to slow down the rate of drying for optimum product properties (col. 11, 42-61).

Response to Arguments

6. The rejection of claims 1-3, 5, 10-13, and 12-14 under 35 U.S.C. 112, second paragraph is withdrawn upon successful amendment and argument from the Applicants.

7. Applicant's arguments filed 12/1/2008 have been fully considered but they are not persuasive.

a. Applicants agree with the examiner that even though evaporation is a result-effective variable (page 7 last sentence), however Applicants argue that Hulesman et al. provides no motivation to slow down the evaporation rate; rather one would have been motivated to speed up the evaporation rate. This is not persuasive because Huelsman et al. disclose that the drying system can be used to reduce or virtually stop the drying of the coating and that it would be advantageous to slow down the rate of drying for optimum product properties (col. 11, 42-61). Thus, one of ordinary skill in the art would have been motivated to slow down the drying of the coating.

b. Applicants also argue that the evaporation rate in Huelsman is 2.3 g/m2 s, as presented in declaration, which is vastly different from the evaporation rate required by claim 1 and therefore the rejection to be reconsidered. This is not

found persuasive. Had the reference to Huelsman taught the evaporation rate of 0.1 g/m2 s, it would have been used as 102 reference. However, Huelsman provides clear motivation to decrease evaporation of the solvent during drying and therefore the rejections presented above are still maintained.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to XIAO ZHAO whose telephone number is (571)270-5343. The examiner can normally be reached on Monday to Friday 8:30 am EST to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Kornakov can be reached on (571)272-1303. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Xiao S Zhao/
Examiner, Art Unit 1792
/Michael Kornakov/
Supervisory Patent Examiner, Art Unit 1792